Claims

[c1]   1. A position detecting circuit for a touch pad, said touch pad including a sensing pad and a sensing pen, the position detecting circuit comprising:

a waveform generator, for generating an input signal, wherein said input signal is capable of gradually moving a position of a zero voltageon said sensing pad in a predetermined direction;

a filter, for receiving a sensing signal sensed by said sensing pen, and filtering and outputting said sensing signal;

an amplifier, coupled to said filter, for receiving and amplifying said filtered sensing signal;

an envelope detector, coupled to said amplifier, for detecting said filtered–amplified sensing signal and generating an envelope signal;

a zero voltage detector, coupled to said envelope detector, for receiving said envelope signal and generating an output signal, wherein said output signalis capable of determining as to when a zero voltage occurs; and

a controller, coupled to said waveform generator and said zero voltage detector, for controlling said waveform generator to generate said input signal and determining

a position ofsaid sensing pen on said sensing pad re-
sponsive to said output signal from said zero voltage
detector.

[c2] 2.The circuit of claim 1, further comprising a multiplexer
for switch-inputting said input signal between a hori-
zontal direction and a vertical direction of said sensing
pad.

[c3] 3.The circuit of claim 1, wherein said waveform genera-
tor includes two digital-to-analog converters.

[c4] 4. The circuit of claim 1, wherein said position of said
zero voltage moves back and forth in said predetermined
direction.

[c5] 5. The circuit of claim 1, wherein said zero voltage de-
tector is a comparator.

[c6] 6.A position detecting methodfor a touch pad, said touch
pad including a sensing pad and a sensing pen, the
method comprising:
inputting an input signal, wherein said input signal is ca-
pable of gradually moving a position of a zero voltageon
said sensing pad in a predetermined direction; and
determining a position of said sensing pen on said sens-
ing pad based on a timing when a zero voltage of a
sensing signal of said sensing pen occurs.

[c7] 7. The method of claim 6, further comprising switch-inputting said input signal between a horizontal direction and a vertical direction of said sensing pad.

[c8] 8.The method of claim 6, wherein said position of said zero voltage moves back and forth in said predetermined direction.

[c9] 9.A touch pad, comprising:
a sensing pad;
a sensing pen;
a waveform generator, for generating an input signal, wherein said input signal is capable of moving a position of a zero voltageon said sensing pad in a predetermined direction gradually;
a filter, for receiving a sensing signal sensed by said sensing pen, filtering and outputting said sensing signal;
an amplifier, coupled to said filter, for receiving and amplifying said filtered sensing signal;
an envelope detector, coupled to said amplifier, for detecting said filtered-amplified sensing signal and generating an envelope signal;
a zero voltage detector, coupled to said envelope detector, for receiving said envelope signal and generating an output signal, wherein said output signalis capableof determining as to when a zero voltage occurs; and

a controller, coupled to said waveform generator and said zero voltage detector, for controlling said waveform generator to generate said input signal and determining a position of said sensing pen on said sensing pad responsive to said output signal from said zero voltage detector.

[c10] 10.The touch pad of claim 9, further comprising a multiplexer for switch-inputting said input signal between a horizontal direction and a vertical direction of said sensing pad.

[c11] 11.The touch pad of claim 9, wherein said waveform generator includes two digital-to-analog converters.

[c12] 12. The touch pad of claim 9, wherein said position of said zero voltage moves back and forth in said predetermined direction.

[c13] 13. The touch pad of claim 9, wherein said zero voltage detector is a comparator.